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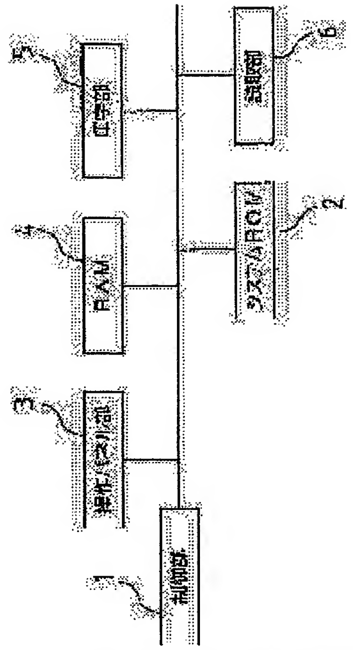
(54) IMAGING APPARATUS

(57)Abstract:

PROBLEM TO BE SOLVED: To determine the type of an apparatus easily and automatically without requiring any extra work, e.g. addition of a hardware port or connection through solder.

SOLUTION: The imaging apparatus having an operating panel section 3 different from type to type comprises a system ROM 2 provided with a program common to all types and data dedicated to each type, and a control section 1 for determining the type by checking the key circuit at the operating panel section 3 and reading out the data of type corresponding to the determination results from the system ROM 2.



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CLAIMS

[Claim(s)]

[Claim 1] Image formation equipment characterized by having the control section which checks the key circuit of System ROM and the control-panel section where the control-panel section was equipped with a program common to each model, and the exclusive data according to each model in different image formation equipment according to a model, distinguishes a model, and reads the data of a model according to the distinction result from System ROM.

[Claim 2] A control section is image formation equipment according to claim 1 characterized by being constituted so that a model may be distinguished to a power up.

[Claim 3] Image formation equipment according to claim 1 or 2 characterized by distinguishing a model by making a part of key circuit of the control-panel section link directly.

[Claim 4] A control section is image formation equipment according to claim 1, 2, or 3 characterized by having the function to judge whether distinction of a model is incorrect recognition.

[Claim 5] A control section is image formation equipment according to claim 4 characterized by being constituted so that an error message may be performed to the display of the control-panel section when the distinction result of a model is incorrect recognition and the distinction result after repeating and performing distinction processing of a model and performing distinction processing of the count of predetermined is incorrect recognition.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the image formation equipment (copying machine) with which the specifications of the operation mode differ according to a model.
[0002]
[Description of the Prior Art] There is a thing of the method which accesses the control-panel section, RAM, the printing section, a read station, etc. as image formation equipment based on the program and data which were beforehand memorized to System ROM, and controls the whole equipment.
[0003] In such image formation equipment, when manufacturing two or more models for export to various countries, the body of equipment can be communalized from the ability of the same appearance device and the same basic function to be used to each model. However, about the specification of System ROM and the operation mode, the thing of every [that is,] destination and dedication in every model is needed according to an individual, respectively.
[0004] The equipment using the common system ROM is indicated by JP,6-103238,A to two or more models from which the specification of the operation mode differs.
[0005] Equipment given in this official report is equipped with a model distinction means checks the hardware port for model discernment which it is prepared in System ROM and the circuit board equipped with a program common about each model , and the exclusive data according to each model , and can set up the signal corresponding to each model , and this hardware port , and distinguish a model , and it is constituted so that the data according to the model distinguished with this model distinction means may read from a system ROM .
[0006]
[Problem(s) to be Solved by the Invention] By the way, with conventional image formation equipment, since the thing of dedication in every model is needed according to an individual about the specification of System ROM and the operation mode, respectively as described above, there is a problem on productivity and equipment cost.
[0007] According to equipment given in JP,6-103238,A, although System ROM can be used as a common article, the hardware port for a model judging is needed separately. Moreover, in order to have to distinguish the difference in a model with means, such as connection by solder, there is possibility of an activity mistake.
[0008] This invention aims at offer of the image formation equipment which can distinguish a model easily, without having been made in view of such the actual condition, and requiring the special activity of the addition of a hardware port, the connection by solder, etc.
[0009]
[Means for Solving the Problem] This invention checks the key circuit of System ROM and the control-panel section where the control-panel section was equipped with a program common to each model, and the exclusive data according to each model in different image formation equipment according to a model, distinguishes a model, and it is characterized by having the control section which reads the data of a model according to the distinction result from System ROM.
[0010] It becomes possible to distinguish a model, without doing preparing a hardware port separately, the connection activity by solder, etc., since the control-panel section distinguishes a model for different image formation equipment according to a model using the key circuit of the control-panel section according to

this invention. In addition, as for distinction of a model, performing automatically in a power up is desirable.
[0011] In the image formation equipment of this invention, by making a part of key circuit (key circuit part which is not used in each model by the difference in the operation mode for every model) of the control-panel section link directly, if it constitutes so that a model may be distinguished, in all models, the substrate of the control-panel section can be used in common.
[0012] In the image formation equipment of this invention, if it judges in a control section whether the distinction result of a model is incorrect recognition, distinction of a model can be ensured. In addition, when the distinction result of a model is incorrect recognition and the distinction result after repeating and performing distinction processing of a model and performing distinction processing of the count of predetermined is incorrect recognition, it may be made to perform an error message to the display of the control-panel section.
[0013]
[Embodiment of the Invention] Hereafter, the operation gestalt of this invention is explained based on a drawing.
[0014] First, the image formation equipment which applies this invention is explained, referring to drawing 1 .

[0015] The image formation equipment (copying machine) 100 shown in drawing 1 equips the top face with the manuscript base 101 which consists of transparent glass etc., and the scanner optical system 102 is arranged down this manuscript base 100.
[0016] The scanner optical system 102 is equipped with the light source 121 for exposure which irradiates light at the manuscript (not shown) laid on the manuscript base 101, and two or more reflecting mirrors 124a and 124b which are made to pass the image formation lens 122 and lead the reflected light from a manuscript to CCD (optoelectric transducer)123.
[0017] The manuscript image data read by CCD123 is led to the laser scanning unit 103 (LSU103 is called hereafter), after an image processing is performed.
[0018] LSU103 is constituted by the laser diode 131 which outputs the laser beam according to manuscript image data, the polygon mirror 132 which carries out the constant-angular-velocity deviation of that output laser beam, and scans a laser beam on a photo conductor 104, reflecting mirrors 133a and 133b, etc., and an electrostatic latent image is formed by irradiating a laser beam on the front face of the photo conductor 104 of a drum configuration from this LSU103.
[0019] The rotation drive of the photo conductor 104 is carried out in the drawing Nakaya mark direction. the developer 105 which develops with a toner the electrostatic latent image of photo conductor 104 front face exposed by the laser beam around this photo conductor 104 in a visible image, and the imprint charger roller 106 which imprints the toner image on a photo conductor 104 in a form -- and The main electrification machine 107 grade which electrifies a photo conductor 104 in predetermined potential is arranged in order at the downstream (downstream of the hand of cut of a photo conductor 104) of the point irradiating [laser beam]. The image formation section is constituted by these photo conductors 104, the developer 105, the imprint charger roller 106, and the main electrification machine 107 grade.
[0020] A transfer paper P is stored in the form tray 108. The pickup roller 109 for feeding a transfer paper P to the point of the form tray 108 is arranged.
[0021] In the downstream (downstream of the transfer paper conveyance direction) of a pickup roller 109 The inset sensor switch for detecting passage of a transfer paper P (not shown), The device in which alignment of the toner image on a photo conductor and a transfer paper is performed based on the signal of an inset sensor switch (imprint charger roller 106), The delivery roller 111 for discharging the delivery detection switch (not shown) and transfer paper P which detect that the fixing roller 110 fixed with heat and the transfer paper P passed the toner image on a transfer paper P is arranged.
[0022] Drawing 2 is the block diagram showing the configuration of the operation gestalt of this invention. In addition, the control-panel section is aimed at different image formation equipment according to a model with this operation gestalt.
[0023] According to the program and data which were beforehand memorized by the system ROM 2, a control section 1 accesses the control-panel section 3, RAM4, the printing section 5, and a read station 6, and controls the whole equipment. The system ROM 2 is equipped with different exclusive data for every model from a program common to all models.
[0024] In the key input information on the first control-panel section 3 in a power up, by detecting the part

which has H level, a control section 1 distinguishes a model (it mentions later for details), reads the data of a model according to the distinction result from a system ROM 2, and uses them for control of the whole equipment.
[0025] Next, the detail of the distinction approach of a model is explained below taking the case of the case where a system ROM 2 is shared to 2 models, Model A and Model B.
[0026] The system ROM 2 is equipped with data-division part 2b and 2c by which the exclusive data of each model of Model A and model B were remembered to be program part 2a in which the program used in common in Model A and Model B was written as shown in drawing 3 .
[0027] As shown in drawing 4 (a), display 3a and two or more key stroke section SWA-1 -SWA-11 are arranged at the control-panel section 3 of Model A.
[0028] It is key stroke section SWA-1 which the key circuit of the control-panel section 3 has composition as shown in drawing 5 , and is located in a line with the 1st of the two or more key stroke section SWA-1 - SWA-11 lines in Model A, SWA-2, and SWA-3. It connects with the input line L11. Key stroke section SWA-4, SWA-5, and SWA-6 on a par with the 2nd line Key stroke section SWA-7 and SWA-8 which are connected to an input line L12 and located in a line with the 3rd line It connects with the input line L13. Key stroke section SWA-9, SWA-10, and SWA-11 on a par with the 4th line It connects with the input line L14.
[0029] Moreover, key stroke section SWA-1, SWA-4, SWA-7, and SWA-9 which are located in a line with eye one train among two or more key stroke section SWA-1 -SWA-11 It connects with output Rhine L21. Key stroke section SWA-2 on a par with eye two trains, SWA-5, SWA-8, and SWA-10 are connected to output Rhine L22, and key stroke section SWA-3 on a par with eye three trains, SWA-6, and SWA-11 are connected to output Rhine L23.
[0030] And in this type A of key circuit, the input line L13 of the 3rd line and output Rhine L23 of eye three trains are linked directly, and when an input signal is sent to an input line L13, that signal is outputted from output Rhine L23.
[0031] As shown in drawing 4 (b), display 3a and two or more key stroke section SWB-1 -SWB-11 are arranged at the control-panel section 3 of Model B.
[0032] It is key stroke section SWB-1 which the key circuit of the control-panel section 3 has composition as shown in drawing 6 , and is located in a line with the 1st of the two or more key stroke section SWB-1 - SWB-11 lines in Model B, SWB-2, and SWB-3. It connects with the input line L11. Key stroke section SWB-4, SWB-5, and SWB-6 on a par with the 2nd line Key stroke section SWB-7, SWB-8, and SWB-9 which are connected to an input line L12 and located in a line with the 3rd line It connects with the input line L13. Key stroke section SWB-10 and SWB-11 on a par with the 4th line It connects with the input line L14.
[0033] Moreover, key SWB-1 located in a line with eye one train among two or more key SWB-1 -SWB-11, SWB-4, SWB-7, and SWB-10 are connected to output Rhine L21. Key SWB-2, SWB-5, and SWB-8 on a par with eye two trains It connects with output Rhine L22, and key SWB-3 on a par with eye three trains, SWB-6, SWB-9, and SWB-11 are connected to output Rhine L23.
[0034] And in this type B of key circuit, the input line L14 of the 4th line and output Rhine L22 of eye two trains are linked directly, and when an input signal is sent to an input line L14, that signal is outputted from output Rhine L22.
[0035] As for 2 models of control-panel sections, the above model A and Model B, 3, the either is alternatively attached in the body of equipment according to the operation mode of the destination.
[0036] Next, it explains, referring to the timing diagram which shows distinction actuation of the model performed by the control section 1 to the flow chart shown in drawing 7 and drawing 8 , and drawing 9 .
[0037] a power up — the input line L11 of the 1st line of the key circuit of the control-panel section 3 — an input signal D1 (pulse signal: refer to drawing 8 and drawing 9) — each output signals F1, F2, and F3 from output Rhine L21, L22, and L23 of eye eye one train [delivery (step S1) and] - 3 train Level is detected (step S2). Such processing is performed in order about the input line L12 of the 2nd line of a key circuit, and the input line L13 of the 3rd line.
[0038] It is step S1 about all the input lines L11, L12, and L13. And output signals F1, F2, and F3 after processing of step S2 is completed It distinguishes whether it is the no from which two or more output signals were set to H level inside (step S4). It judges that a detection result is incorrect recognition when two or more output signals are set to H level, and is step S1. It returns (retry).
[0039] the case where two or more output signals are set to H level here — step S1 - step S4 up to — although a user may press the actuation key of the control-panel section 3 in a power up and the reason for

carrying out the retry of the processing has the normal control-panel section 3, it is for avoiding un-arranging, such as being recognized as the control-panel section 3 being failure.
[0040] Since it may be what depends a retry on another failure when two or more output signals are H level after performing the count of predetermined (for example, 2 times), processing is ended after performing an error message to display 3a of the control-panel section 3 (step S9).
[0041] Step S4 It distinguishes that set, and distinguished from what was normally detected when an output signal detected that only one is H level, next the output signal was set to H level with which input signal.
[0042] Specifically, it is an input signal D3. When it is H level, it is an output signal F3. It distinguishes whether it was set to H level (step S5). this distinction result — setting — the time of H level of an input signal D3 — output signal F3 when it has H level, the input line L13 of a key circuit and output Rhine L23 are in the direct connection condition (drawing 5) — since thing semantics is carried out, it judges with Model A (step S6).
[0043] Step S6 It sets and is an output signal D3. When it does not have H level, it is the following step S7. It is an input signal D4 spontaneously. When it is H level, it is an output signal F2. It distinguishes whether it was set to H level. this distinction result — setting — input signal D4 the time of H level — output signal F2 when it has H level, the input line L14 of a key circuit and output Rhine L22 are in the direct connection condition (drawing 6) — since thing semantics is carried out, it judges with Model B (step S8).
[0044] Step S7 It sets and is an output signal D2. Since detected H level may be what something depends on another failure when it does not have H level, processing is ended after performing an error message to display 3a of the control-panel section 3.
[0045] As mentioned above, since according to this operation gestalt a model is automatically distinguished by the power up by the control-panel section 3 with which the body of equipment was equipped and the data of a model according to the distinction result are read from a system ROM 2, it ends as the control-panel section is exchanged, in case a model change is made, and a model modification activity can be finished easily.
[0046] in addition, although the above operation gestalt showed the example which performs 2 models of distinction, Model A and Model B, restrict this invention to this — ****** — there are nothings and it can apply also to 3 or more models of equipment with which the operation modes differ.
[0047]
[Effect of the Invention] Since the control-panel section distinguishes a model for different image formation equipment according to a model using the key circuit of the control-panel section according to this invention as explained above, it is not necessary to prepare a hardware port separately and, and the connection activity by solder etc. becomes unnecessary. And only by exchanging the control-panel section attached in the body of equipment, since model modification is performed automatically, a model can be changed into the basis of easy actuation.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is drawing showing the outline configuration of the image formation equipment (copying machine) which applies this invention.
[Drawing 2] It is the block diagram showing the configuration of the operation gestalt of this invention.
[Drawing 3] It is drawing showing the contents of storage of System ROM.
[Drawing 4] It is drawing showing the example of a configuration of the control-panel section.
[Drawing 5] It is the circuitry Fig. of the control-panel section (model A).
[Drawing 6] It is the circuitry Fig. of the control-panel section (model B).
[Drawing 7] It is the flow chart which shows actuation of the model distinction performed in a control section.
[Drawing 8] It is the timing chart which similarly shows actuation of model distinction.
[Drawing 9] It is the timing chart which similarly shows actuation of model distinction.
[Description of Notations]
1 Control Section
2 System ROM
3 Control-Panel Section
3a Display
SWA-1 -SWA-11 Key stroke section (model A)
SWB-1 -SWB-11 Key stroke section (model B)
L11-L14 Input line
L21-L23 Output Rhine
4 RAM
5 Printing Section
6 Read Station

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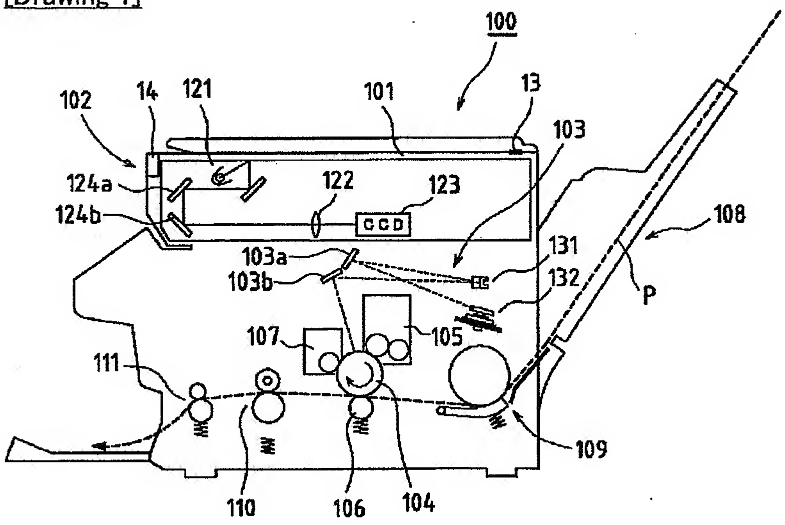
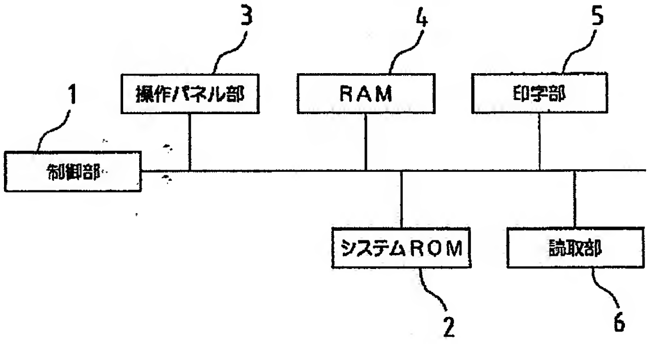
DRAWINGS

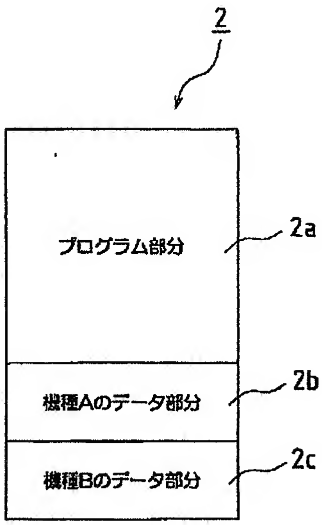
[Drawing 1]


100
102
14
121
101
13
103
124a
122
123
124b
CCD
108
103a
131
103b
132
P
107
105
111
109
110
106
104

[Drawing 2]

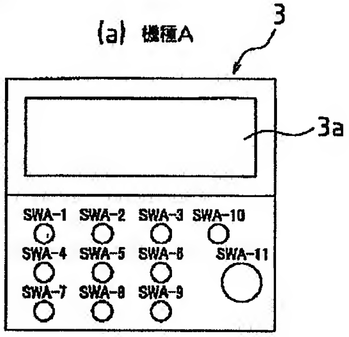

3
4
5
1
操作パネル部
RAM
印字部
制御部
システムROM
読取部
2
6

[Drawing 3]

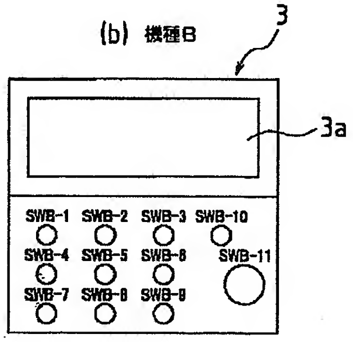

2
プログラム部分
2a
機種Aのデータ部分
2b
機種Bのデータ部分
2c

[Drawing 4]

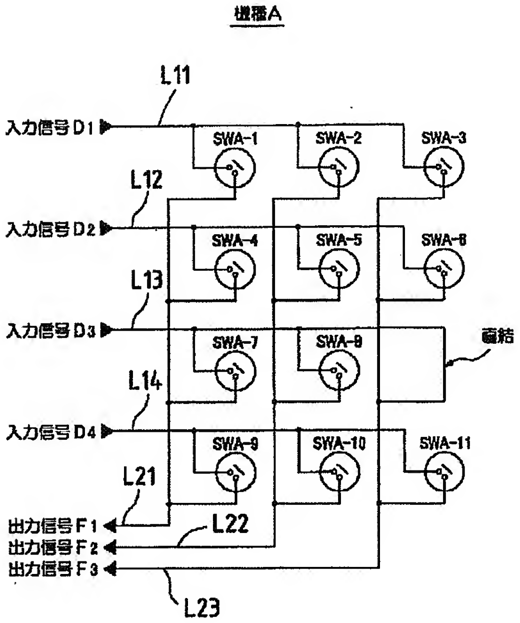
(a) 機種A


3
3a
SWA-1
SWA-2
SWA-3
SWA-10
SWA-4
SWA-5
SWA-6
SWA-11
SWA-7
SWA-8
SWA-9

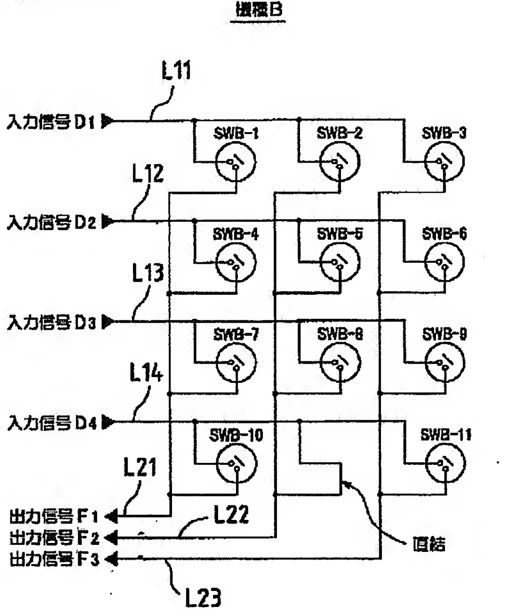
(b) 機種B


3
3a
SWB-1
SWB-2
SWB-3
SWB-10
SWB-4
SWB-5
SWB-6
SWB-11
SWB-7
SWB-8
SWB-9

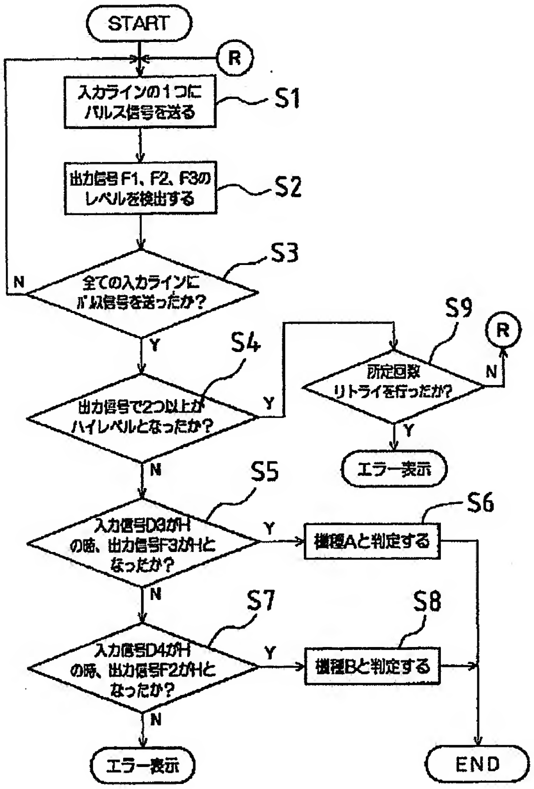
[Drawing 5]


機種A
L11
入力信号D1
SWA-1
SWA-2
SWA-3
L12
入力信号D2
SWA-4
SWA-5
SWA-6
L13
入力信号D3
SWA-7
SWA-8
直結
L14
入力信号D4
SWA-9
SWA-10
SWA-11
L21
出力信号F1
L22
出力信号F2
出力信号F3
L23

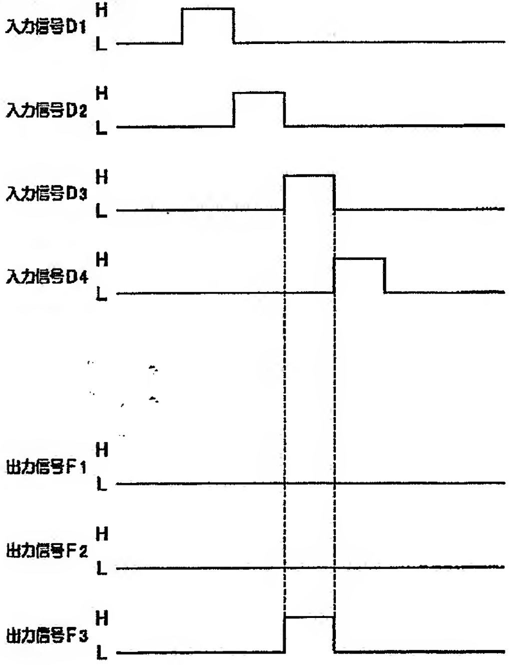
[Drawing 6]


機種B
L11
入力信号D1
SWB-1
SWB-2
SWB-3
L12
入力信号D2
SWB-4
SWB-5
SWB-6
L13
入力信号D3
SWB-7
SWB-8
SWB-9
L14
入力信号D4
SWB-10
SWB-11
L21
出力信号F1
L22
出力信号F2
出力信号F3
直結
L23

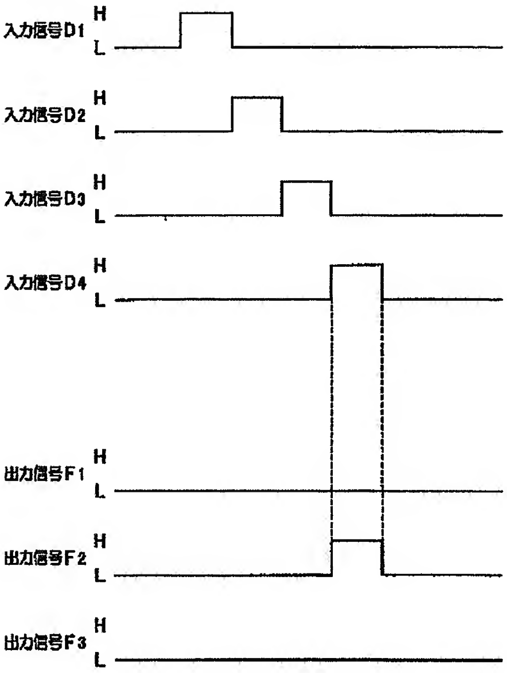
[Drawing 7]


START
R
入力ラインの1つに
パルス信号を送る
S1
出力信号F1、F2、F3の
レベルを検出する
S2
S3
N
全ての入力ラインに
パルス信号を送ったか?
Y
S4
出力信号で2つ以上が
ハイレベルとなったか?
Y
S9
所定回数
リトライを行ったか?
N
R
Y
エラー表示
N
S5
入力信号D3がH
の時、出力信号F3がHと
なったか?
Y
機種Aと判定する
S6
N
S7
入力信号D4がH
の時、出力信号F2がHと
なったか?
Y
機種Bと判定する
S8
N
エラー表示
END

[Drawing 8]



[Drawing 9]


入力信号D1
H
L
入力信号D2
H
L
入力信号D3
H
L
入力信号D4
H
L
出力信号F1
H
L
出力信号F2
H
L
出力信号F3
H
L

[Translation done.]